Etiology of Recurrent Abdominal Pain in Children

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Abstract

Introduction: Recurrent abdominal pain (RAP) is one of the most common gastrointestinal complaints during childhood and most frequent presentation in paediatric clinics. RAP has been classified etiologically into two broad groups: organic and functional. Functional causes of RAP were reported to be present in 90% of cases in the past. Because of the new diagnostic tools and an improved knowledge, the prevalence of RAP has been now increasing. The current study was done to find out the etiology of RAP in Nepalese children. **Materials and Methods:** This was a prospective study conducted in Civil Services Hospital, Paediatric department from April 2010 to March 2011 in children aged between 4 and 15 years, attending the outpatient department. All the children with RAP, who fulfilled the Apley's criteria were included in this study. **Results:** Out of 47 children with RAP, organic causes were found in 41 children while non-organic causes, in 6 children. Parasitic infestation was the commonest organic cause of RAP, followed by idiopathic chronic constipation. Other causes were culture proven urinary tract infection, antral gastritis and *H. pylori* infection. **Conclusion:** Organic disorder is still the commoner cause of RAP in our part of the world. The key step in the management of RAP is to first investigate for the organic cause based on the symptoms.

Key words: RAP, Organic, Non organic

Introduction

Recurrent abdominal pain is one of the most common gastrointestinal complaints in childhood and most frequent presentation in paediatric clinics. Apley and Naish first described RAP in a child who had "at least three bouts of pain, severe enough to affect his activities, over a period of not less than three months,with attacks continuing in the year preceding the examination"[1].

RAP has been classified etiologically into two broad groups: organic and functional. Although functional group contributed to 90% of RAP cases in the past, new diagnostic methods have contributed to improved knowledge about organic RAP and its diagnosis[2]. RAP has been reported to occur in 10-15% of children aged between 4 and 16 years. In Asia, the prevalence of RAP is reported to have ranged from 8.2% to 11%[2,3], which is not much different from that of the Western world. RAP is rare among children younger than five years old and older than fifteen years, with peak at ten to twelve years.

23.6 to 80% of Asian children have organic causes for RAP. Parasitic infestation and constipation are the main causes for RAP in the Indian subcontinent, while chronic constipation and gastro-esophageal reflux disease are more common[4,5,6] in the West.

Childhood functional gastrointestinal disorders (FGID) include a variable combination of often age-dependent, chronic or recurrent symptoms not explained by structural or biochemical abnormalities. In 1999, international committee of paediatricians established the diagnostic criteria for FGID in childhood and adolescents. The Rome III criteria published in 2006 is a modification of the original criteria[4,7,8].

The exact mechanism of organic pain still remains unclear in children. Emotions, cognitive processes and other central nervous system influences may exaggerate the perception of pain to produce altered awareness of discomfort from the visceral sensation, described as visceral hyperalgesia[9,10,11].

RAP has often been associated with unnecessary diagnostic tests and treatment leading to more worry for affected children and their parents, and leaving the

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How to cite this article ?
Joshi B G. Etiology of Recurrent Abdominal Pain in Children. J Nepal Paediatr Soc 2013;33(1):31-33.

physician into a dilemma. This study thus aims to focus on the etiology of RAP in our setting.

Materials and Methods

From April 2010 to March 2011, all the children with RAP aged between 4 and 15 years, attending the Paediatrics outpatient department of Civil Services Hospital were studied prospectively. Children with abdominal pain fulfilling the Apley's criteria were included in this study. All the children that were enrolled were subjected to investigations such as stool microscopy, urine microscopy and culture, dipstick test and ultrasound of abdomen. Children with persisting symptoms and negative investigational reports were further asked for doing complete blood cell count, erythrocyte sedimentation rate, Mantoux test, X- ray chest, X- ray abdomen and upper gastrointestinal endoscopy with biopsy where ever necessary. Few children having psychological problems were referred for psychiatric evaluation.

Results

Among 47 children with RAP, organic cause was found in 41 children (87%) and non-organic cause in 6 children (13%). Giardiasis was found to be the commonest (46%) organic cause for RAP, followed by idiopathic chronic constipation (34%) and culture-proven urinary tract infection (7.3%). Upper gastrointestinal endoscopy done in six patients revealed antral gastritis in two, esophagitis along with antral gastritis in one and *H. pylori* infection in one. The remaining two children had normal endoscopic finding. The parasites seen in the stool examination were *H. nana* (1) and Giardia lamblia (19). Constipation was seen frequently among children between 5 and 10 years of age, while UTI was seen in children less than 5 years old. Antral gastritis and *H. pylori* infection was present in children above 10 years old (Figure 1).

Out of six children with non-organic RAP, two patients had nocturnal enuresis with no other pathologies identified. One patient had school phobia and three patients had stress for studies (Figure 2). Either of the parents of these two patients with stress had anxiety disorder. All the organic causes of RAP were further managed accordingly. Most of the patients are now on follow-up. Children with non-organic RAP were referred to psychiatrist for appropriate management.

Discussion

In the current study organic cause (87%) was more common than the non-organic cause for RAP in children. Several studies done in Asian children have also shown similar findings[4,5,6]. Apley in his study had suggested organic pathology to be around 10% in children with RAP[1]. However advances in medical investigations have allowed more complete assessment of the condition. Among children with organic etiology, parasitic infestation was the commonest (49%) cause of RAP in all age group, followed by constipation which was mostly seen in the age group of 5 to 10 years. Giardiasis as a cause of RAP is solely the problem in developing world because of a number of factors like poor health hygiene, overcrowding, contaminated water supply and climatic condition. Younas et al[12] and Shakkoury et al[13] in their studies also found similar results.

Chronic constipation in children is mainly due to reluctance to evacuate the bowel completely and in addition, unwillingness to use school washrooms. Prevalence of constipation in RAP has been reported to vary from 4% to 30 %[14,15].

Recent studies have shown that the association of *H. pylori* with RAP is not significant, but in children with upper abdominal pain chronic gastritis, duodenitis and esophagitis were more common[10,11]. Urinary tract infection, diagnosed by microscopic examination, dipstick and culture was seen in 7% of cases. This finding was similar to that of Buch et al[6].

The non-organic cause of RAP was seen in 13% of patients in the current study. This result justifies the findings of other studies done in Asian sub-continent, but contradicts the finding of Dutta et al, who showed non- organic RAP in 74% of Indian children similar to that in the West[12].

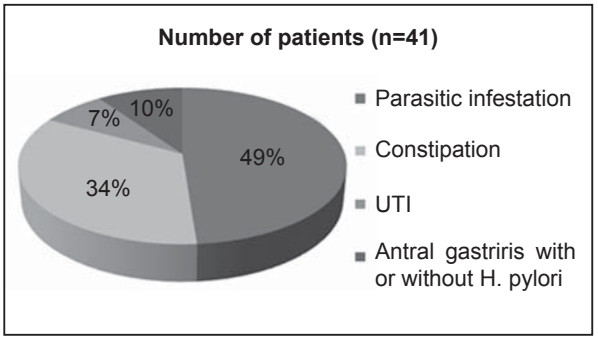

Fig 1: Causes of organic RAP

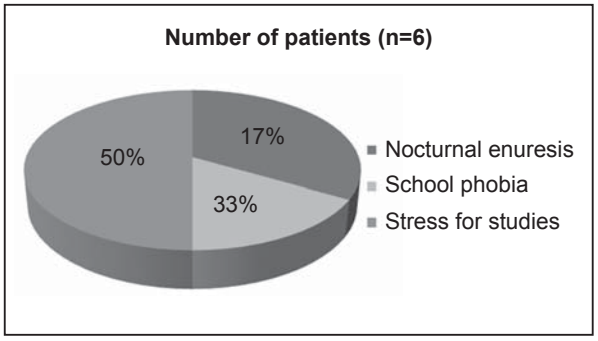

Fig 2: Causes of non- organic RAP

Conclusion

Organic etiology of RAP is still commoner in our part of the world. The key step in the management of RAP is to first rule out the organic disorder as an etiology by carrying out meticulous investigations based on the symptoms.

Acknowledgements: None
Funding: Nil
Conflict of Interest: None
Permission from IRB: Yes

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